WHAT IS CLAIMED IS:

1. A process for producing L-ascorbic acid, or a sodium, potassium or calcium salt thereof from 2-keto-L-gulonic acid, or a sodium, potassium or calcium salt of 2-keto-L-gulonic acid comprising:

a. incubating in a solution a substrate comprising 2-keto-L-gulonic acid as a free acid or a sodium, potassium or calcium salt of 2-keto-L-gulonic acid, and a thermoacidophilic microorganism at about 30°C to about 100°C and at a pH from about 1 to about 6 to form L-ascorbic acid or a salt thereof; and

b. isolating the L-ascorbic acid or salt thereof from the microorganism or the solution.

2. A process for producing D-erythorbic acid, or its sodium, potassium or calcium salt thereof from 2-keto-D-gluconic acid or a sodium, potassium or calcium salt of 2-keto-D-gluconic acid comprising:

a. incubating in a solution a substrate comprising 2-keto-D-gluconic acid as a free acid or as a sodium, potassium or calcium salt of 2-keto-D-gluconic acid, and a thermoacidophilic microorganism at about 30°C to about 100°C and at a pH from about 1 to about 6 to form D-erythorbic acid or a salt thereof; and

b. isolating the D-erythorbic acid or salt thereof from the microorganism or the solution.

3. A process according to claim 1 or claim 2 wherein the thermoacidophilic microorganism is a prokaryote.

4. A process according to claim 3 wherein the prokaryote is a bacteria.

5. A process according to claim 4 wherein the bacteria belongs to the genus *Alicyclobacillus*.

6. A process according to claim 5 wherein the bacteria is an *Alicyclobacillus sp.* strain selected from the group consisting of DSM No. 13652, DSM No. 13653, NA-20 (DSM No. 13649), NA-21 (DSM No. 13650), FJ-21 (DSM No. 13651), and mutants thereof.

7. A process according to claim 5 wherein the bacteria is a biologically and taxonomically homogeneous culture having the identifying characteristics of an *Alicyclobacillus* sp. strain selected from the group consisting of DSM No. 13652, DSM No. 13653, NA-20 (DSM No. 13649), NA-21 (DSM No. 13650), and FJ-21 (DSM No. 13651).

8. A process according claims 1 or 2 wherein the solution contains water as the solvent.

9. A process according to claims 1 or 2 wherein the incubation is carried out under aerobic conditions.

10. A process according to claims 1 or 2 wherein the incubation is carried out under aerobic conditions in the presence of nutrients.

11. A process according to claims 1 or 2 wherein the concentration of the substrate in the solution is from about 5% (w/v) to about 20% (w/v), based on the amount of free acid.

12. A process according to claim 11 wherein the concentration of the substrate in the solution is from about 10% (w/v) to about 15% (w/v), based on the amount of free acid.

13. A process according to claims 1 or 2 wherein the incubation is carried out at about 40°C to about 95°C.

14. A process according to claim 13 wherein the incubation is carried out at about 55°C to about 95°C.

15. A process according to claims 1 or 2 wherein the incubation is carried out at a pH from about 1.0 to about 4.5.

16. A process according to claim 15 wherein the incubation is carried out at a pH from about 1.5 to about 3.0.

17. An isolated microorganism selected from the group consisting of *Alicyclobacillus* sp. NA-20 (DSM No. 13649), *Alicyclobacillus* sp. NA-21 (DSM No. 13650), and *Alicyclobacillus* sp. FJ-21 (DSM No. 13651).

18. A process for producing L-ascorbic acid or a salt thereof from 2-keto-L-gulonic acid or a salt thereof comprising:

a. contacting 2-keto-L-gulonic acid with a microorganism selected from the group consisting of *Alicyclobacillus* sp. NA-20 (DSM No. 13649), *Alicyclobacillus* sp. NA-21 (DSM No. 13650), and *Alicyclobacillus* sp. FJ-21 (DSM No. 13651) in a culture medium sufficient to support the growth of the microorganism under the following conditions:

i. a temperature of about 30°C to about 100°C; and

ii. a pH from about 1 to about 6; and

b. isolating the L-ascorbic acid or a salt thereof from the microorganism or the medium.

19. A process for producing D-erythorbic acid or a salt thereof from 2-keto-D-gluconic acid or a salt thereof comprising:

a. contacting 2-keto-D-gluconic acid with a microorganism selected from the group consisting of *Alicyclobacillus* sp. NA-20 (DSM No. 13649), *Alicyclobacillus* sp. NA-21 (DSM No. 13650), and *Alicyclobacillus* sp. FJ-21 (DSM No. 13651) in a culture medium sufficient to support the growth of the microorganism under the following conditions:

i. a temperature of about 30°C to about 100°C; and

ii. a pH from about 1 to about 6; and

b. isolating the D-erythorbic acid or a salt thereof from the microorganism or the medium.

20. A microorganism that produces L-ascorbic acid or a salt thereof or D-erythorbic acid or a salt thereof having the following characteristics:

a. an rDNA sequence that is at least 98.1% identical to SEQ ID NOS 1, 2 or 3 using the Genetyx-SV/R software program;

b. a rod-shaped morphology;

c. a width of about 0.8 μm;

d. an inability to grow under anaerobic conditions;

e. exhibiting catalase activity;

f. ϖ-Cycohexylic acid as its major fatty acid;

g. an ability to grow at a pH of 3.0 and a temperature of 60°C;

h. an inability to grow under the following conditions:

pH	Temperature
3.0	30°C
6.5	60°C
6.5	30°C

i. an ability to produce a (1) L-ascorbic acid or a salt thereof from 2-keto-L-gulonic acid or a salt thereof, (2) D-erythorbic acid or a salt thereof from 2-keto-D-gluconic acid or a salt thereof, or (3) both L-ascorbic acid or a salt thereof and D-erythorbic acid or a salt thereof from 2-keto-L-gulonic acid or a salt thereof and 2-keto-D-gluconic acid or a salt thereof, respectively.